REMARKS

The specification has been amended by substitution. The substitute specification includes no new matter.

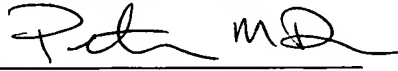The abstract has been replaced with a new abstract.

Claims 1-12 have been canceled, and claims 13-25 have been newly added. After the amendments entered herein, claims 13-25 are pending in the application.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

By _____
Peter M. Dichiara
   Registration No.: 38,005
WILMER CUTLER PICKERING HALE AND
   DORR LLP
60 State Street
Boston, Massachusetts 02109
(617) 526-6000
Attorney for Applicant

Motor Vehicle Identity Anti-fake Apparatus and Method

Technical Field of the Invention

The present invention relates to an apparatus and method for monitoring and

5   ~~providing~~reflecting the legality of a motor vehicle identity status to outside by using a

vehicle-mount microcomputer ~~and communication technology~~information system, and

belongs to the field of identity anti-fake and automatic identification for a motor vehicle.

Description of the Related Art

10   The legality of a motor vehicle identity is a broad conception and generally comprises

the following aspects: whether the license plate itself is true or false and whether it is in

conformity with the vehicle; whether the main configuration, ~~members~~appearance and ~~face~~

color,~~ pattern~~ of the vehicle are in conformity with those of in legal enrollment and

registration; whether the vehicle has passed the verification and check with respect to

15   stipulated items on schedule; whether the source and usage of the vehicle are legal, and the

like.

The identification of legality of a road vehicle identity is a difficulty not solved for a

long time both domestically and abroad.~~According to corresponding law, only legal vehicles~~

~~are allowed to drive on road. However, for lacking of a good monitoring and prevention~~

20   ~~method at present, it is generally hard for corresponding administrative institution to know~~

~~and control the legality condition of the driving vehicle, so that the illegal vehicle~~ If the

difficulty can not be resolved properly, illegal vehicles, for example including the situations

of false license plate, ~~license plate~~ inconformity between the license plate and the vehicle,

illegal repack, illegal operation, counterfeiting of a specific identity, evasion of stipulated

25   fees, theft of vehicles, ~~the~~ verification and check period overrun, etc., cannot be forbidden,

and vehicle-related crimes can not be prevented effectively.

The current methods for detecting the identity legality of a road vehicle may be classified into ~~two categories, both having~~ the following ~~main defects~~two categories.

1. Direct detection. In this type of method, a vehicle is stopped and the license plate,

5   the vehicle and related certificates are synthetically detected. This is a standard method with accuracy and thoroughness, but it is mainly manually operated, is time consuming and toilsome and thus has low efficiency. This method is particularly prone to being restricted by various subjective and objective factors and thus generally cannot be efficiently implemented. Therefore, this kind of method cannot be the mainstream method, except for being at special

10 places or in special conditions,~~this kind of method cannot be the mainstream method for~~ ~~determining the legality of the identity of a vehicle on road~~.

2. Indirect detection. In this type of method, the legality of the driving vehicle is indirectly judged by monitoring the license plate (or logo, the same below). Since this kind of method is ~~based on license plate identification technology without detecting~~suitable for

15 automatic identification, more and more countries and regions regard the method as a mainstream technology for monitoring the vehicle. However, since the this kind of method only monitors the license plate but not detect the vehicle and related certificates, and current license plate technology does not have the function of reflecting the virtual status of the vehicle identity, judging the defects of the vehicle depending on such kind of method

20 ~~necessarily leads to low accuracy, and~~ can only obtain uncertain conclusions, particularly cannot confirm that the identity of the vehicle is legal. Moreover, this kind of method has high demands for ground detection ~~apparatus, specially the computer network and state~~ ~~database~~system, and thus, in the regions~~having no ground detection apparatus or~~ being incompletely provided ground detection apparatus, this type of method will not obtain any

25 effect, and the defection cannot be implemented without omission. For example, a radio

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frequency communication system is disclosed in Chinese Patent Application No. CN1305911A, published on Aug. 1, 2001 and entitled "automobile electronic license plate system", and the system comprises automobile electronic license plate apparatus and automobile electronic license plate detection apparatus. According to the descriptions of the

5   specification of the application, said system has the function of quickly identifying and finding remarkable features of the vehicle, as well as the function of automobile logo anti-fake. However, as can be seen from the technical solution, ~~the remarkable features substantively only relate to an outside "logo" of the vehicle and can only be regarded as a reference for identifying the vehicles, and can not make it~~this system also has the similar

10   difficulty as mentioned above, and can not make sure to accurately identify and find the vehicle. This system especially can not confirm that the identify of the vehicles is legal, and ~~the system~~ does not have the anti-fake function with respect to the vehicle and the logo. Said system cannot obtain any effect in regions having no ground detection apparatus.

At present, the illegal vehicle on road cannot be detected or prevented and a variety of

15   detecting ~~methods have many defects, and~~methodscan not resolve the problem of vehicle identification, the reasons lie in that ~~first,~~the ~~illegal vehicle is generally in a "hidden" state, and the legality status of the vehicle identify cannot be judged from the appearance of the vehicle; second, the present license plate can only directly illustrates its own feature, but does not make it sure technically that the license plate itself legally corresponds to the vehicle,~~

20   ~~specially does~~vehicle has not anti-fake design and the appearance and license plate of the vehicle do not have the function of ~~directly~~ reflecting the virtual status of the vehicle identity.

Summery of the Invention

~~Resolving~~In order to resolve the difficulty of judging the identity legality of a road

25   vehicle~~ and creating better conditions for timely finding and preventing illegal vehicles~~

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~~cannot be achieved by making improvements to the existing methods, but by~~, it is needed to design a new technical solution ~~designed~~ to eliminate the source of the difficulty. The present invention exactly solves the above difficulty. According to the present invention, a device is mounted on ~~an appropriate position of~~ the vehicle for automatically monitoring, analyzing

5   and judging the vehicle itself, the license plate and related certificates and providing to outside the resulting information of the above said self detection, wherein the administrative institution input in advance the electronic archives of the vehicle identity into a microcomputer of said device. The present invention thus ~~overcomes the defects in the prior art, and the administrative institution can adopts relatively simple detecting apparatus, even~~

10   ~~by means of manual vision, to detect or observe the vehicles on road in a state without stopping the vehicles, resulting in advantageous effect similar to the above said method of "stopping the vehicle for detection", i.e. the method of direct detection~~achieves the anti-fake of the vehicle identity, and makes the appearance and license plate of the vehicle have the function of reflecting the virtual status of the vehicle identity and makes the illegal vehicles

15   be exposed automatically.

The technical solution of the present invention is described as follows.

~~1. The Configuration of the Anti-fake Apparatus for Motor Vehicle Identity~~

1. The anti-fake apparatus for motor vehicle identity comprises four parts: member anti-fake means, a microcomputer, information displays and communicators. The power

20   supply for the system operation directly comes from the vehicle power supply.

~~(1) Each of the member anti-fake means is a memory IC chip for storing cipher data and authentication logic, and its data input/output interface is connected to the communication interface of the microcomputer via wires; the front and rear license plates and respective members legally enrolled and registered are respectively provided with respective~~

25   ~~member anti-fake means; the respective member anti-fake means may be fixed on the license~~

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~~plates of the vehicle and respective legally enrolled and registered member in a sticking and~~

~~covering seal manner. Each of the member anti-fake means is integrated with respective~~

~~license plates or members to form a whole body, and if such a combination is broken, the~~

~~member anti-fake means will be damaged, and the microcomputer will immediately find this~~

5   ~~damage. The object for doing so is to prevent the license plates or the legally enrolled and~~

~~registered members from being replaced illegally. By means of the connection between the~~

~~microcomputer and respective member anti-fake means, respective license plates and legally~~

~~enrolled and registered members of the vehicle are combined into an integral information~~

~~system, and thus the reliability of the relation between the license plates, the members and the~~

10   ~~vehicle may be assured.~~

~~(2) Each of the member anti-fake means may also employ a chip and antenna of a~~

~~noncontact IC card, and is in signal connection with said microcomputer through a~~

~~noncontact IC card read/write unit, wherein said noncontact IC card read/write unit is in~~

~~signal connection with said chip and antenna of said concontact IC card in a radio frequency~~

15   ~~communication manner, and a communication interface of said noncontact IC card read/write~~

~~unit is connected to said communication interface of said microcomputer by wires; said~~

~~noncontact IC card read/write unit is mounted at a position that has no signal shielding object~~

~~and is within a valid range for communication with said chip and antenna of said noncontact~~

~~IC card. Said member anti-fake means can also be read by an external legal read/write unit~~

20   ~~when it employs the chip and antenna of said concontact IC card.~~

~~(3)~~ The microcomputer comprises a microprocessor, a memory and <u>a group of</u>

communication interfaces~~. The memory comprises a memory for storing programs and data~~

~~and a random access memory. The microcomputer may be mounted inside the vehicle or into~~

~~the~~<u>,</u> which microcomputer is mounted on the vehicle or the license plate~~body outside the~~

25   ~~vehicle.~~<u>.</u>

(4) The communicators are wireless-bidirectional communication apparatus. At least a set of communicator is indispensable, preferably two sets, wherein one set performs short distance radio communication with the roadside detection station, and the other set performs long-distance wireless communication directly with the management center within a range of certain region.

(5) Information displays comprise three types of displays, i.e.,

Each of the member anti-fake means is a means containing identify identification information. The license plate and respective members of the vehicle legally enrolled and registered according to stipulations of the administrative institution are respectively provided with at least a member anti-fake means. Respective member anti-fake means is in signal connection with respective communication interface of the microcomputer, respectively. Two types of member anti-fake means can be used. One type is the member anti-fake means that is in wired signal connection with the microcomputer, and the other type is the member anti-fake means that is in wireless connection with the microcomputer. The microcomputer monitors the status of the identify information of respective member anti-fake means, so as to make judgment on the status of the identity of the license plate or members of the vehicle on which the respective member anti-fake means mounted.

The informal displays are mounted on the license plate or members of the vehicle, and connected to the communication interfaces of the microcomputer by wires. The information displays can employ colorful light information displays, acoustic information display and screen display. The colorful light information displays adopt at least four or screen display. The function of these information displays is to convert the signal transmitted from the microcomputer and reflecting the legality of the status of the vehicle identity to information expressing modes, for example the colorful light, the acoustic information or graphics and text that can be identified directly by sense of human being.

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The communicators are wireless bidirectional communication apparatus and mounted on the vehicle or the license plate, and the number of the communicators is at least one. The communication interface of the communicator is connected to the communication interface of the microcomputer by wires. The communicator is used for intercommunion between the

5   motor vehicle identity anti-fake apparatus and the outside administrative institution.

A vehicle-mount information system for monitoring and reflecting the legality of the status of the vehicle identity is formed by means of the signal connections among the microcomputer, the respective member anti-fake means, the information displays and the communicator.

10   2. Each of the member anti-fake means being in wired signal connection with the microcomputer is a IC ship means, comprising a data input/output interface and a memory for storing identity identification information, wherein the data input/output interface is connected to the communication interfaces of the microcomputer by wires.

3. Each of the member anti-fake means being in wireless signal connection with the

15   microcomputer is a noncontact IC card chip, and is in signal connection with said microcomputer through a noncontact IC card read/write unit, wherein said noncontact IC card read/write unit is mounted on the vehicle or the license plate and is in signal connection with said concontact IC card chip in a radio frequency communication manner. The communication interface of said noncontact IC card read/write unit is connected to said

20   communication interface of said microcomputer by wires.

4. The member anti-fake means are fixed on the license plate or respective members of the vehicle in a sticking or covering seal manner.

5. The colorful light information displays are electrical light-emitting means, ~~which are mounted on an place where optical signal can be observed directly and clearly by eyes of a~~

25   ~~person outside, and the control input interfaces of these~~ and there are at least three colorful

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light information displays with at least two different colors. The input ports of respective

colorful light displays are connected to the communication interfaces of the microcomputer

by wires, respectively.

6. The electrical light-emitting means are ~~connected to the communication interfaces of~~

~~the microcomputer via wires; the acoustic information display adopts at least one electrical~~

~~sounding means, which is mounted on a place where acoustic signal can be obviously heard~~

~~by a person outside, and the control input interface of the~~ light-emitting diodes.

7. The acoustic information display is an electrical sounding means, and there is at least

one acoustic information display ~~is connected to the communication interface of the~~

~~microcomputer via wires; the screen display adopts an electronic screen means packaged into~~

~~a cartridge, which cartridge is mounted on the upper surface of the operating board in front of~~

~~the driver inside the vehicle, and the control input interface of the screen~~. The input port of

the acoustic information display is connected to the communication interface of the

microcomputer ~~via wires.~~

~~The colorful light information displays and acoustic information display can also be~~

~~connected to the microcomputers respectively via~~ by wires.

8. The screen information display is an electronic screen information display means

having a communication interface. There is at least one screen information display. The

screen information display is mounted in the cab of the vehicle, and the communication

interface of the screen display is connected to the communication interface of the

microcomputer via wires.

9. The colorful light information displays and acoustic information display are

connected to the microcomputers, respectively, via an acoustooptic controller, and ~~the~~

~~communication interface of~~ each of the acoustooptic controller is ~~connected to the~~

~~communication interface of the microcomputer via wires; the output port of the acoustooptic~~

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~~controller is directly connected to the wiring port of respective colorful light information~~

~~displays or the acoustic information display, and the connection ports and the acoustooptic~~

~~controller are packaged into an integral closed body by insulating material.~~

~~Each of the acoustooptic controller is a microcomputer system having an acoustooptic~~

5 ~~drive module, and comprises CPU, ROM, RAM, I/O, a communication interface, an~~

~~acoustooptic drive module and an output port. The acoustooptic controllers provide drive~~

~~power for the information display, and importantly, they prevent the pseudo control signal~~

~~from entering the information display to lead to information displaying distortion by means~~

~~of the close connection and seal between the acoustooptic controllers and the wiring ports of~~

10 ~~the information displays. If such close connection and seal is broken, the acoustooptic~~

~~controller will be damaged, which damage is thereby immediately observed by the~~

~~microcomputer.~~

~~The screen display, communicators, microcomputer, colorful light information displays,~~

~~acoustic information display and the like, may be packaged into a cartridge which is mounted~~

15 ~~on the upper surface of the operating board in front of the driver inside the vehicle.~~

~~2. The Body of the License Plate Serves as the Base and Casing of Part of the Members~~

~~of the Vehicle Identity Anti-fake Apparatus~~

~~The member anti-fake means, read/write unit, information displays and microcomputer,~~

~~communicators may be mounted and packaged into the~~ a microcomputer system having an

20 acoustooptic drive module, and comprises CPU, ROM, RAM, I/O, a communication

interface, an acoustooptic drive module and an output port.

The communication interface of each of the acoustooptic controller is connected to the

communication interface of the microcomputer via wires. The output port of respective

acoustooptic controller is directly connected to the input port of respective colorful light

25 information displays or the acoustic information display, and the connection ports and the

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acoustooptic controller are packaged into an integral closed body by insulating material.

10. The member anti-fake means, colorful information displays, acoustic information display, microcomputer and communicator are mounted and packaged into the body of the license plate; the body of the license plate; the body of the license plate serves as the base and casing of part of the members of the vehicle identity anti-fake apparatus and should be made from insulating material; the front face of the license platethese components. The body of the license plate is made from insulating material, and the front face of the license plate body is provided with windows through which the colorful light information displays radiate color light signal to outside, and the rear or side of the license plate body is provided with a cable interface which serves as an interface connecting the components inside the license plate body and the components outside the license plate body and the power supply of the vehicle.

3. The Technical Requirements for the Outside Management Center or Detection Station

In order to sufficiently develop the function of the motor vehicle identity anti-fake apparatus, the outside management center or detection station employ the following methods to manage and control the operation of the apparatus.

(1) Through a wired connection between the communication interface of the computer in the management center and the communication interface of the microcomputer of the motor vehicle identity anti-fake apparatus, the management center installs and configures operation programs and information process software in the memory of the microcomputer of the motor vehicle identity anti-fake apparatus, and writes necessary vehicle archive information into the memory whenever necessary; at the same time, the management center can extract and query the operation record information stored in the microcomputer of the motor vehicle identity anti-fake apparatus.

(2) The management center or detection station normally manages and controls the operation of the motor vehicle identity anti-fake apparatus in a wireless communication manner.

(3) The microcomputer of the motor vehicle identity anti-fake apparatus corrects its inner clock, and standard time information timely issued by the outside management center or detection station in a wireless communication manner is thus indispensable. Whether or not the time of the inner clock is correct will influence results of several monitoring items and operating records. In order to prevent inaccuracy of the time of the inner clock of the microcomputer of the motor vehicle identity anti-fake apparatus caused by long period of stagnation of drive of the vehicle, external signal is needed to force the microcomputer to correct the time.

(4) When the detection station checks whether the color, pattern, configuration and size of the vehicle is in conformity with those of in the enrollment and registration, it is needed to take the present image of the vehicle and transmit the vehicle image information or vehicle image feature information to the motor vehicle identity anti-fake apparatus in a wireless communication manner.

(5) When the management center needs to check the present location of a vehicle or reveal that a vehicle is particularly tracked by related enforcement organ, it is required to issue a query instruction and the identity code of the vehicle in a wireless communication manner.

4. The Method, Steps and Contents for Transmitting Information to Outside by the Communicators through which the colorful light information displays radiate color light signal to outside.

11. The microcomputer, information displays and communicator are packaged into a cartridge which is mounted inside the cab of the vehicle.

   12. The motor vehicle identity anti-fake apparatus automatically detects the status of the

vehicle identity, displays or communicates in wireless manner the detection results according

to pre-configurations of the administrative institution or to the real-time wireless remote

control instructions issued by the administrative institution.

5   ~~(1) After~~ The administrative institution loads in advance in the microcomputer operation

management software, and writes into the microcomputer the archive information of the

vehicle and identify identification information of respective member anti-fake means and the

position on which the respective member anti-fake means are located. After completing the

above said configurations, the motor vehicle identity anti-fake apparatus ~~is powered on, the~~

10   ~~receiver of each of the communicators is in a status of normal open and is monitored and~~

~~controlled by~~starts to operate automatically under the control of the microcomputer.

   ~~(2) Upon detecting that the communicator has received a legal call issued by the~~

~~communicator of the management center or detection station, the microcomputer stores a set~~

~~of information transmitted by the communicator of the management center or detection~~

15   ~~station in the memory.~~

   ~~(3) The microcomputer judges the newly stored information to determine whether~~

~~there exists a detection demand or a question query information.~~

   ~~(4) If there exists, said microcomputer further judges identity authority of the person~~

~~who transmits the information.~~

20   ~~(5) Finally, based on the identity authority of the caller, the microprocessor of the~~

~~microcomputer selects necessary information from the memory, processes and generates~~

~~reply information, and controls the communicators to transmit said information, as stipulated~~

~~by the predetermined program.(6) The information as stored in the memory of the~~

~~microcomputer of the motor vehicle identity anti-fake apparatus comprises monitoring result~~

25   ~~information on current legality status of the present vehicle identity, the vehicle archive~~

~~information, operation records of monitoring process made by the motor vehicle identity anti-~~

~~fake apparatus in a period of time on the legality status of the present vehicle identity, records~~

~~of the detection made by the management center and the detection station for the present~~

~~vehicle on the query items, procedure and time. All records are automatically updated under~~

5   ~~the control of the built-in programs.~~According to the predetermined program, the

microcomputer makes detection and judgment automatically with respect to the following

five aspects based on the detection demand, time information, current image feature

information of the vehicle, the identity feature information of the illegal vehicles which are

required to be particularly looked up, issued by the administrative institution in wireless

10   manner and received by the communicator.

~~5. The Method and Contents for Displaying Information by the Information Displays~~

~~Under the direct control of the microcomputer, the information displays adopt the~~

~~following manner to intuitively display the information of vehicle identity.~~

~~(1) The colorful light information displays represents specific information associated~~

15   ~~with the legal status of the vehicle identity using different position relation, color or flicker~~

~~frequency of light.~~

~~(2) The acoustic information display represents that the identity of the vehicle currently~~

~~exists an illegal status using sound signal.~~

~~(3) The screen display represents the information on present status of the vehicle~~

20   ~~identity and corresponding archive information using graphics and text.~~

~~6. The Method for Correcting Time~~

~~The microcomputer corrects its inner clock based on the legal standard time~~

~~information received by the communicator. And the specific method comprises the following~~

~~steps: after the communicators have received the legal standard time information issued by~~

25   ~~the wireless transmitter of the management center or detection station, the microcomputer~~

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~~storing the information in its memory based on identification result, and setting said standard~~

~~time as the present time of its inner clock under the control of the built-in program.~~

~~7. The Method for Monitoring the Legality of the Motor Vehicle Identity~~

(1)Judging the legality of the license plate ~~and main~~or members of the vehicle.

5　　　　~~Each of the member anti-fake means and the feature of the information stored therein~~

~~are unique, and respective member anti-fake means is integrated with respective license~~

~~plates or vehicle members to form a integral body which can serve as a feature sign for~~

~~identifying the identities of the license plates or main members of the vehicle. Since the~~

~~respective member anti-fake means is sealed and fixed on the license plates or the vehicle~~

10　　~~members, and has poor ability of against mechanical damage, if the connection between the~~

~~member anti-fake means and the license plates or vehicle members is broken, for example, by~~

~~illegally replacing the license plates or main members of the vehicle, or by moving the~~

~~member anti-fake means, the member anti-fake means will be damaged and its internal~~

~~feature information will be lost. The microcomputer uses each of said member anti-fake~~

15　　~~means and features of information stored in the microcomputer as feature signs for~~

~~identifying identities of respective license plates or members of the vehicle. The memory of~~

~~the microcomputer stores feature information of the respective member anti-fake means and~~

~~the part represented by said respective anti-fake means. When judging the legality of~~

~~respective license plates or members of said vehicle, said microcomputer first extracts the~~The

20　　microcomputer extracts information ~~of said~~from respective member anti-fake means and

~~enters it into said memory of the microcomputer; then compares it with said previously stored~~

~~feature information of the respective member anti-fake means; if the comparison result is~~

~~consistent~~compares the extracted information　with the feature information of the respective

member anti-fake means previously stored in the microcomputer. If all the features are

25　　consistent with each other, it indicates that the identity of the license ~~plates or members as~~

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~~represented by said~~plate and members are legal; if the feature information of one or more of

the member anti-fake means ~~is legal; if the comparison result~~ is inconsistent or ~~the feature~~

~~information of some member anti-fake means~~ does not exist, it means that the identity of

~~corresponding license plates or members~~the vehicle is illegal.

5   (2) Judging whether the motor vehicle has passed the verification and check with

respect to stipulated items on schedule.

The microcomputer retrieves ~~time when related~~contents of the items which have passed

the verification and check ~~at the latest time~~ and the period of validity ~~of said items~~ from

vehicle archive information stored in advance in the memory of the microcomputer, and

10   ~~compares~~makes judgment to determine whether or not said items are still within said period

of validity ~~with the present date of the inner clock of the microcomputer; if the present date~~

~~falls.~~ If all the items fall within the period of validity, it means that the vehicle has passed

the verification and check with respect to the stipulated items on schedule; otherwise, it

means that the ~~vehicle has not passed the verification and check with respect to the stipulated~~

15   ~~items on schedule~~identity of the vehicle is illegal.

(3) Judging whether the motor vehicle has special usages or not:

The microcomputer retrieves and judges information on usage of the vehicle and period

of validity of the usage from the vehicle archive information stored in advance in the memory

of the microcomputer. If there exists some special ~~usage and the present date falls~~usages

20   which should be registered in the administrative institution and such special usages fall

within the period of validity, it means that the vehicle has ~~a certain type of~~such special

usage~~s~~; otherwise, it means that the vehicle has no ~~certain type of~~such special usage~~s~~.

~~The special usage is defined by the management center, for example including the~~

~~police car, the taxi, or the like.~~

25   (4) Judging to determine whether the ~~present~~vehicle belongs to ~~the~~an illegal vehicle

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particularly tracked by related enforcement organ.

The ~~enforcement organ presets in said microcomputer a calling cipher for the vehicle~~ ~~identity anti-fake apparatus of the particularly tracked vehicle. If the~~ communicator receives the ~~calling cipher of the vehicle identity anti-fake apparatus of the particularly tracked~~

5   ~~vehicle, said~~identity feature information issued in wireless manner by the administrative institution about the illegal vehicle that needs to be particularly tracked, and stores immediately such information into the microcomputer. The microcomputer compares the ~~calling cipher~~ received feature   with the ~~calling cipher~~feature of the ~~particularly~~ ~~tracked~~present vehicle as stored in ~~its memory~~advance . If the ~~comparison result is~~

10   ~~confirmative~~features are consistent with each other, it means that the present vehicle belongs to the ~~vehicle particularly tracked by the related enforcement organ.~~illegal vehicle particularly tracked by the related enforcement organ.

~~The vehicle particularly tracked are the vehicles that are looked for or controlled by the~~ ~~related enforcement organ for some reasons, for example, the particularly tracked vehicles~~

15   ~~include the robbed cars and stolen cars.~~

(5) Judging whether the appearance and color~~, pattern, configuration and size of the~~ ~~present vehicle~~ are in conformity with those of in the enrollment and registration.

The ~~microcomputer stores real-time image or~~communicator receives the feature information about the real-time image of the present vehicle~~, which is~~ transmitted ~~from~~by the

20   external detection station, and ~~received by said communicators, in the memory~~stores immediately the received feature information into the microcomputer. The microcomputer compares the received information with the image feature of the present vehicle in the vehicle archive information stored in ~~said memory~~advance. If the comparison result is consistent, it means that the ~~related items of the present vehicle are in conformity with those of in the~~

25   ~~enrollment and registration~~vehicle is legal in terms of the appearance and the color ;

otherwise, it means that ~~they are in no conformity.~~the vehicle identity is illegal.

The microcomputer stores at any moment the detection and judgment conclusions in terms of the above five aspects into the memory, and at the same time controls the display modes and contents of the information displays according to the property of the detection and

5   judgment conclusions, as well as controls the transmission timing and contents of the communicators according to the instructions as issued by the administrative institution in a wireless communication manner.

13. The method performed by the microcomputer to control the transmission timing and contents of the communicators according to the instructions as issued by the administrative

10   institution in a wireless communication manner is described as follows. The receiver of the communicator is always in operation status under the management of the microcomputer. Upon the microcomputer finds that the communicators receive the calling information of the management center or the detection station, the microcomputer stores the set of information into the memory, and makes judgment from this set of information to determine whether

15   there exists a detection demand of the administrative institution for checking and detecting the present vehicle. If there exists such a detection demand, the microcomputer furthers determines the authority of the detecting party. If the detection demand is legal, according to a predetermined program, the microprocessor of the microcomputer selects information within the authority of the detecting party from the information stored in the memory, and

20   organizes and generates reply information and controls the transmitter of the communicator to transmit the reply information.

The present invention substantively supplements and improves the function of the license plate, or provides an intellectual "ID card" of a vehicle ~~which reflects the legality~~ ~~status of,~~ or is an "electronic police" accompanying the vehicle ~~identity~~. The present

25   invention ~~overcomes defect of the prior art,~~ not only enabl~~ing~~es the license plate itself to

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possess the function of anti-fake, but also ensur~~inges~~ the reliable correspondence between the license plate and the vehicle, and thus ~~the present invention~~making the license plate or the appearance of the vehicle has the function of reflecting the legality status of the vehicle identity. ~~The~~

5   Since the present invention radically resolves the problem of anti-fake identification of the basic information of the vehicle and possesses various information representation modes, ~~and~~it plays an important role in ~~the vehicle management,~~ traffic management, vehicle management of state road and other fields related with the identification of vehicle identity. More specifically, the present invention at least has the following three remarkable effects.

10   (1) The present invention ~~resolves~~provides a precondition for resolving the difficulty of ~~judging the legality status of the identities~~identification of the vehicles on road, ~~and provides a precondition for related management institutions to accurately judge the legality of a vehicle without stopping it~~. Since the present invention outputs to outside the detection conclusion information directly, ~~the demands for the ground supporting detection apparatus~~

15   ~~are~~it can make the current license plate technology be updated and developed to the vehicle identification technology. The administrative institution can detect or observe the vehicle by using simpler detection apparatus, and even just by eyeballing, without stopping the vehicle, thus obtaining good effects similar to that of in the method of "stopping the vehicle for detection". Moreover, as compared with existing various automatic license plate

20   identification technology, the demand for the external detection system is simple, and the management cost is largely reduced. In particular, the visual identification by naked eye is simply implemented, and these exists no detection omission nationwide.

        (2) The present invention changes the passive situation in which the ~~management~~administrative institution can not master the ~~legality status~~basic information of

25   the driving vehicles, and thus provides a precondition to achieve intelligentization,

informatization and real-time of the road vehicle ~~management~~and traffic managements.

(3) The present invention achieves the policy of "give first rank to prevention". Since the ~~appearance of the illegal vehicle will automatically present remarkable identification~~ ~~signs which are hard to hide~~illegal vehicles are always in the status of exposure, people who

5   drive the illegal vehicles are heavily deterred, so that the illegal vehicles are prevented from occurring and being driven on road, thereby vehicle-related crimes will be reduced markedly.

Brief Description of the Drawings

Figure 1 is a principle chart of the configuration of the motor vehicle identity anti-fake

10   apparatus according to the present invention.

~~Components: member anti-fake means 3; communicators 2; information displays 4;~~ ~~microcomputer 1.~~

Figure 2 is a principle chart of each of the member anti-fake means 3-1 and 3-2 which is in wired signal connection with the microcomputer according to an embodiment as shown

15   in Figure 4.

~~Components: memory 301 for storing cipher and cipher authentication logic and data;~~ ~~data input/output interface 302.~~

Figure 3 is a principle chart of each of the member anti-fake means 3-3 and 3-4 which is in wireless signal connection with the microcomputer according to the embodiment as

20   shown in Figure 4.~~Components: memory 301; encryption and decryption module 303;~~ ~~rectifying and voltage modulating module 304; data encoding and transmitting module 305;~~ ~~signal and clock extracting module 306; high frequency signal receiving and transmitting~~ ~~module 307; antenna 308; microprocessor and monitoring program 309.~~

Figure 4 is a principle chart of the motor vehicle identity anti-fake apparatus according

25   to an embodiment.

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Figure 5 is a principle chart of each of the acoustooptic controller 5 according to the embodiment as shown in Figure 4.Components: CPU, ROM, RAM, I/O, a communication interface 501, an acoustooptic drive module 502 and an output port 503.

Figure 6 shows six window positions of the front license plate body 7 according to the embodiment as shown in Figure 4.

The surface of the front license plate body 7 is provided with 6 windows, respectively indicated by windows 71, 72, 73, 74, 75, 76.

Figure 7 is a main flow chart of the operation program of the microcomputer 1 according to the embodiment as shown in Figure 4.

Description of the Preferred Embodiment

The present invention is further described in details as follows in association with figures and embodiments.

Figure 1 is a principle chart of the configuration of the motor vehicle identity anti-fake apparatus according to the present invention. The anti-fake apparatus for motor vehicle identity comprises four parts: member anti-fake means 3, a microcomputer 1, information displays 4 and communicators 2. The power supply for the system operation directly comes from the vehicle power supply.

As for the functionsFunctions of respective components of the motor vehicle identity anti-fake apparatus, the

(1) The member anti-fake means 3 serve for monitoring the identity status of eachis integrated with the license plate or the members, serving as the feature signs for identifying the license plate or main member of a vehicle, the members.

(2) The communicators 2 serve for communicatingcommunicate with the external management center and detection station in a wireless manner, thethe detection station by

20

wireless manner. At least a set of communicator is indispensable, preferably two sets, wherein

one set performs short distance radio communication with the roadside detection station, and

the other set performs long distance wireless communication directly with the management

center within a range of certain region.

5   (3) The information displays 4 are used to intuitively provide to outside main

information which reflects the identity status of a vehicle;display the information reflecting

the current status of the vehicle identity. There are three types of information displays that

can be selected. The colorful light information displays 41 represent specific information

associated with the legal status of the vehicle identity using different position relation, color

10   or flicker of light. The acoustic information display 42 represents that the identity of the

vehicle currently exists an illegal status using sound signal. The screen display 43 represents

information on the legality of the vehicle identity using graphics and text.

          (4) The microcomputer 1 is a center for storing and processing information, and

controlling operation of the motor vehicle identity anti-fake apparatus. The functions of the

15   present invention are achieved under the cooperation of the above said four parts..

          Figure 2 is a principle chart of each of the member anti-fake means 3-1 and 3-2 which

is in wired signal connection with the microcomputer according to the embodiment as shown

in Figure 4.

          Each of the member anti-fake means 3-1 and 3-2 comprises a data input/output

20   interface 302, a memory 301 for storing cipher, cipher authentication logic and

data.containing identity identification information.

          Figure 3 is a principle chart of each of the member anti-fake means 3-3 and 3-4 which

is in wireless signal connection with the microcomputer according to the embodiment as

shown in Figure 4.

25   Each of the member anti-fake means 3-3 and 3-4 adopts a noncontact IC card

~~circuit~~chip, comprising a memory 310, an encryption and decryption module 303, a rectifying and voltage-modulating module 304, a data encoding and transmitting module 305, a signal and clock extracting module 306, a high-frequency signal receiving and transmitting module 307, an antenna 308, a microprocessor and monitoring program 309.

5   Figure 4 is a principle chart of an embodiment of the motor vehicle identity anti-fake apparatus.

The anti-fake means 3 comprise<u>s</u> four member anti-fake means 3-1, 3-2, 3-3, 3-4, which four member anti-fake means are respectively stuck and sealed with epoxy resin onto the front license plate, the car frame, the engine and the back surface of the rear license plate.

10   The ~~member anti-fake means 3-1 and 3-2 adopt a memory IC chip storing thereon cipher, cipher authentication logic and data, and each of the anti-fake means has a data input/output interface. The data~~<u>data</u> input/output interface ~~of the member anti-fake means 3-1~~ <u>of the member anti-fake means 3-1</u> is connected to the communication interface ~~13-1 of~~ <u>13-1 of</u> microcomputer ~~1 via wires, the data input/output interface of the member anti-fake means 3-2~~

15   <u>1 via wires, the data input/output interface of the member anti-fake means 3-2</u> is connected to the communication interface 13-<u>-</u>2 of microcomputer 1 via wires. ~~The member anti-fake means 3-3 and 3-4 each adopts a noncontact IC card chip and its antenna~~.

~~Read~~<u>Noncontact IC card read</u>/write unit 8 and read/write unit 9 ~~each adopts a noncontact IC card read/write chip and its antenna and communication interface, and is~~<u>are</u>

20   respectively stuck and sealed with epoxy resin on a position within 10cm in the vicinity of ~~member anti-fake means 3-3 and 3-4, and is respectively responsible for reading/writing from/into~~<u>the</u> member anti-fake means 3-3 and 3-4. The communication interface of read/write unit 8 is connected to the communication interface 13-3 of microcomputer 1 via wires, and the communication interface of read/write unit 9 is connected to the

25   communication interface 13-4 of microcomputer 1 via wires.

Microcomputer 1 comprises a microprocessor 11, a memory 12, communication interfaces 13, and is mounted within the body 7 of the front license plate. The microprocessor 11 operates at a clock frequency of 1GHz. The memory 12 comprises a memory for storing programs and data, and a random access memory. The interfaces 13 ha~~ve~~s 15 independent

5   communication interfaces indicated respectively as communication interfaces 13-1, 13-2, 13-3, 13-4, 13-5, 13-6, 13-7, 13-8, 13-9, 13-10, 13-11, 13-12, 13-13, 13-14 and 13-15, and all these communication interfaces employ serial communication interface RS232.

A peripheral communication socket 6 is connected to the communication interface 13-9 of microcomputer 1 and mounted on the side face of the front license plate body 7, and is

10   used to supply wired connection communication between the computer of the management center and microcomputer 1 whenever necessary.

The communicators 2 comprise communicators 2-1 and 2-2. The communicator 2-1 is a radio frequency communicator, and it adopts an "electronic label" radio frequency communication circuit ~~of a highway no-stop charging system~~. The controller of the

15   communicator 2-1 is provided with a RS232 communication interface which is connected to the communication interface 13-6 of microcomputer 1. The communication between said communicator 2-1 and the detection station on the roadside is controlled by the microcomputer 1. The communicator 2 ~~-2 is a wireless~~<u>1 is fixed and sealed in the front license plate body 7. The</u> communicator ~~which communicates with the management center, and it~~<u>2-2</u>

20   adopts a miniature ultrashort wave transceiver having a communication interface. The communication interface ~~of the controller~~ of the communicator 2-2 is connected to the communication interface 13-5 of microcomputer 1, and the communication between said communicator 2-2 and the management center is controlled by the microcomputer 1.

The colorful light information displays 41 comprise six colorful light information

25   displays indicated respectively as 41-1, 41-2, 41-3, 41-4, 41-5 and 41-6, which six colorful

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light information displays employ light-emitting diodes. The single acoustic information display 42 employs an electronic speaker.

The acoustooptic controllers 5 comprise seven controllers indicated respectively as 5-1, 5-2, 5-3, 5-4, 5-5, 5-6 and 5-7. The output ports of the seven controllers are respectively connected to ~~wiring~~the input ports of the colorful light information displays 41-1, 41-2, 41-3, 41-4, 41-5, 41-6 and acoustic information display 42, and the respective connection ports and the acoustooptic controller chips are stuck and sealed by epoxy resin as a whole body which is then mounted into the front license plate body 7. The communication interfaces of acoustooptic controllers 5-1, 5-2, 5-3, 5-4, 5-5, 5-6 and 5-7 are respectively connected to the communication interfaces 13-10, 13-11, 13-12, 13-13, 13-14, 13-15 and 13-~~18~~ of microcomputer 1.

The screen display 43 adopts a crystal liquid display, and its communication interface is connected to the communication interface 13-7 of microcomputer 1.

The screen display 43 and the communicator 2-2 are packaged into a cartridge which is mounted on the ~~upper surface of an~~ operating board in front of the driver inside the vehicle.

Figure 5 is a principle chart of each of the acoustooptic controller 5 according to the embodiment as shown in Figure 4. Each of the acoustooptic controller 5 is a microcomputer system having an acoustooptic drive module, and comprises MPU, ROM, RAM, I/O, a communication interface 501, an acoustooptic drive module 502 and an output port 503.

<u>The acoustooptic controllers provide drive power for the information displays, and more importantly, they prevent the pseudo control signal from entering the information displays by means of the close connection and seal between the acoustooptic controllers and the input ports of the information displays.</u>

Figure 6 shows six window positions of the front license plate body 7 according to the embodiment as shown in Figure 4.

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The front license plate body 7 is provided with six windows on the surface, indicated respectively as windows 71, 72, 73, 74, 75, 76, and colorful light information displays 41-1, 41-2, 41-3, 41-4, 41-5 and 41-6 are respectively mounted inside ~~the body. The~~these windows ~~are used~~ for radiating color~~ful~~ light ~~outward, wherein~~to outside. The colorful light

5   information displays 41-1, 41-2, 41-3, 41-4, 41-5 are light-emitting diodes which emit green light. When the colorful light information display 41-1 emits light, it means that the license plate, the car frame and the engine are legal; when the colorful light information display 41-1 dose not emit light, it means that the license plate or the car frame or the engine are illegal. When the colorful light information display 41-2 emits light, it means that the vehicle has

10   passed the verification or check with respect to all stipulated items on schedule; when the colorful light information display 41-2 does not emit light, it means that the vehicle has failed to pass the verification or check with respect to some of the stipulated items. When the colorful light information display 41-3 emits light, it means that the ~~color, pattern, configuration and size~~appearance and the color of the vehicle are in conformity with those on

15   in the enrollment and registration; when the colorful light information display 41-3 does not emit light, it means that the ~~color, pattern, configuration and size~~appearance and the color of the vehicle are not in conformity with those of in the enrollment and registration. When the colorful light information display 41-4 emits light, it means that the present vehicle does not belong to the vehicle particularly tracked by related enforcement organ; when the colorful

20   light information display 41-4 does emit light, it means that the present vehicle belongs to the vehicle particularly tracked by related enforcement organ. The vehicle particularly tracked are the vehicles that are looked for or controlled by the related enforcement organ for some reasons, for example, the particularly tracked vehicles include the robbed cars and stolen cars. When the colorful light information display 41-5 emits light, it means that the vehicle has

25   some special usage**s**; when the colorful light information display 41-5 does not emit light, it

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means that the vehicle does not have some special ~~usage~~usages. The special usage is defined

by the administrative institution, for example including the police car, the taxi, or the like.

The colorful light information display 41-6 is a light-emitting diode which emits red light.

When the colorful light information display 41-6 emits light, it means one of the identity of

5   the vehicle ~~has an~~is illegal ~~identity~~; when the colorful light information display 41-6 does not

emit light, it means nothing.

      Figure 7 is a main flow chart of the operation program of the microcomputer 1

according to the embodiment as shown in Figure 4.

      The operation of each step is described sequentially in details as follows:

10   1.   the vehicle being powered on, and the motor vehicle identity anti-fake apparatus and the

        microcomputer 1 immediately starting to work (600);

    2.   making check to determine whether or not the communicators 2-1 and 2-2 receive legal

        calling information (601);

    3.   if a legal call is received, writing this set of information having the legal call into the

15   memory 12 (602);

    4.   making check to determine whether or not the information written into the memory 12

        has a detection command or questioning query information of the management center or

        the detection station (603);

    5.   if there exists a detection command or questioning query information, determining the

20   authority of the management center or the detection station (604);

    6.   organizing reply information according to the authority of the management center or the

        detection station, and controlling the communicator 2-1 or 2-2 to transmit the reply

        information and writing the operation records into the memory 12 (605);

    7.   making check to determine whether or not the information newly written into the

25   memory 12 has the vehicle image feature information transmitted from the detection

station (606);

8. if there exists the vehicle image feature information, comparing said vehicle image feature information with the present vehicle image feature in the vehicle archive information <u>stored</u> in the memory, and writing the comparison result into the memory 12 (608);

9. if said comparison result is consistent, transmitting an instruction of switching on the colorful light information display 41-3 to the acoustooptic controller 5-3, controlling the screen display 43 to describe in graphics and text that the ~~color, pattern, configuration~~<u>appearance</u> and ~~size~~<u>the color</u> of the vehicle are consistent with those of in the enrollment and registration, and writing the operation records into the memory 12 (609);

10. if said comparison result is inconsistent, transmitting an instruction of switching off the colorful light information display 41-3 to the acoustooptic controller 5-3; transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the ~~color, pattern, configuration~~<u>appearance</u> and ~~size~~<u>the color</u> of the vehicle being inconsistent with those of in the enrollment and registration, and writing the operation records into the memory 12 (610);

11. making check to determine whether or not the information newly written into the memory 12 has standard time information (611);

12. if there e<u>xi</u>sts standard time information, setting said standard time as the present time of the inner clock of the microcomputer 1 itself (612);

13. making check to determine whether or not the information newly written into the memory 12 has the name of the present vehicle particularly tracked by the management

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center (613);

14. if there exists the name of the present vehicle particularly tracked by the management center, transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching off the colorful light information display 41-4 to the acoustooptic controller 5-4; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the vehicle belongs to vehicle particularly tracked by the related enforcement organ; writing the operation records into the memory 12 (614);

15. judging to determine whether or not the vehicle has passed the verification and check with respect to stipulated items on schedule, and writing the judging result into the memory 12 (615);

16. if the vehicle has passed the verification and check with respect to stipulated items on schedule, transmitting an instruction of switching on the colorful light information display 41-2 to the acoustooptic controller 5-2; controlling the screen display 43 to describe in graphics and text that the vehicle has passed the verification and check with respect to stipulated items on schedule (616);

17. if the vehicle has not passed the verification and check with respect to stipulated items on schedule, transmitting an instruction of switching off the colorful light information display 41-2 to the acoustooptic controller 5-2; transmitting an instruction of switching on the acoustic information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the vehicle has not passed the verification and check with respect to stipulated items on schedule (617);

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18. judging to determine whether or not the vehicle has some special usages, and writing the judging result into the memory 12 (618);

19. if the vehicle has some special usages, transmitting an instruction of switching on the colorful light information display 41-5 to the acoustooptic controller 5-5; controlling the screen display 43 to describe in graphics and text the special usages that the vehicle has (619);

20. if the vehicle has no special usages, transmitting an instruction of switching off the colorful light information display 41-5 to the acoustooptic controller 5-5;

21. checking ~~to determine whether or not there exists correct information of~~ the read/write unit 8 ~~(~~ 621 ~~)~~;

22. if there exists identification information of the read/write unit 8, checking the member anti-fake means 3-3 (622);

23. if there exists identification information of the member anti-fake means 3-3, controlling the screen display 43 to describe in graphics and text that the identity of the vehicle engine is legal; transmitting an instruction of switching on the colorful light information display 41-1 to the acoustooptic controller 5-1 if the operation records contain the identification information of the other three member anti-fake means 3-1, 3-2 and 3-4 at the same time; writing the monitoring operation records into the memory 12 (623);

24. if there does not exist identification information of the member anti-fake means 3-3, transmitting an instruction of switching off the colorful light information display 41-1 to the acoustooptic controller 5-1; transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the identity of the vehicle engine is illegal, and writing the monitoring operation records

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into the memory 12 (624);

25. if there does not exist identification information of the read/write unit 8, transmitting an instruction of switching off the colorful light information display 41-1 to the acoustooptic controller 5-1; transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the identity of the vehicle engine is illegal, and writing the monitoring operation records into the memory 12 (626);

26. checking the read/write unit 9 (627);

27. if there exists identification information of the read/write unit 9, checking the member anti-fake means 3-4 (628);

28. if there exists identification information of the member anti-fake means 3-4, controlling the screen display 43 to describe in graphics and text that the identity of the rear license plate of the vehicle is legal; transmitting an instruction of switching on the colorful light information display 41-1 to the optical controller 5-1 if the operation records contain the correct information of the other three member anti-fake means 3-1, 3-2 and 3-3 at the same time; writing the monitoring operation records into the memory 12 (629);

29. if there does not exist identification information of the member anti-fake means 3-4, transmitting an instruction of switching off the colorful light information display 41-1 to the acoustooptic controller 5-1; transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the identity of the rear license plate of the vehicle is illegal, and writing the monitoring

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operation records into the memory 12 (630);

30. if there does not exist information of the read/write unit 9, transmitting an instruction of switching off the colorful light information display 41-1 to the acoustooptic controller 5-1; transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the identity of the rear license plate of the vehicle is illegal, and writing the monitoring operation records into the memory 12 (632);

31. checking the member anti-fake means 3-1 (633);

32. if there exists identification information of the member anti-fake means 3-1, controlling the screen display 43 to describe in graphics and text that the identity of the front license plate of the vehicle is legal; transmitting an instruction of switching on the colorful light information display 41-1 to the optical controller 5-1 if the operation records contain the correct information of the other three member anti-fake means 3-4, 3-2 and 3-3 at the same time; writing the monitoring operation records into the memory 12 and member anti-fake means 3-1 (635);

33. if there does not exist identification information of the member anti-fake means 3-1, transmitting an instruction of switching off the colorful light information display 41-1 to the acoustooptic controller 5-1, and transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the identity of the front license plate of the vehicle is illegal; and writing the monitoring operation records into the memory 12 (637);

34. checking the member anti-fake means 3-2 (638);

35. if there exists identification information of the member anti-fake means 3-2, controlling the screen display 43 to describe in graphics and text that the identity of the car frame is legal; transmitting an instruction of switching on the colorful light information display 41-1 to the optical controller 5-1 if the operation records contain the correct information of the other three member anti-fake means 3-4, 3-1 and 3-3 at the same time; writing the monitoring operation records into the memory 12 and member anti-fake means 3-2 (640);

36. if there does not exist identification information of the member anti-fake means 3-2, transmitting an instruction of switching off the colorful light information display 41-1 to the acoustooptic controller 5-1, and transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the identity of the car frame is illegal, and writing the monitoring operation records into the memory 12 (642);

37. checking the acoustooptic controller 5-1 (643);

38. if there exists identification information of the acoustooptic controller 5-1, writing the monitoring operation records into the memory 12 (645);

39. if there does not exist identification information of the acoustooptic controller 5-1, transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the colorful light information display 41-1 is illegal; and writing the monitoring operation records into the memory 12 (647);

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40. checking the acoustooptic controller 5-2 (648);

41. if there exists identification information of the acoustooptic controller 5-2, writing the monitoring operation records into the memory 12 (650);

42. if there does not exist identification information of the acoustooptic controller 5-2, transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the colorful light information display 41-2 is illegal; and writing the monitoring operation records into the memory 12 (652);

43. checking the acoustooptic controller 5-3 (653);

44. if there exists identification information of the acoustooptic controller 5-3, writing the monitoring operation records into the memory 12 (655);

45. if there does not exist identification information of the acoustooptic controller 5-3, transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the colorful light information display 41-3 is illegal; and writing the monitoring operation records into the memory 12 (657);

46. checking the acoustooptic controller 5-4 (658);

47. if there exists identification information of the acoustooptic controller 5-4, writing the monitoring operation records into the memory 12 (660);

48. if there does not exist identification information of the acoustooptic controller 5-4, transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display

43 to describe in graphics and text that the colorful light information display 41-4 is illegal; and writing the monitoring operation records into the memory 12 (662);

49. checking the acoustooptic controller 5-5 (663);

50. ~~22. if there exists correct information of the read/write unit 8, checking to determine whether or not~~if there exists ~~correct~~identification information of the ~~member anti-fake means 3-3 (622~~acoustooptic controller 5-5, writing the monitoring operation records into the memory 12 (665);

~~23. if there exists correct identification information of the member anti-fake means 3-3, controlling the screen display 43 to describe in graphics and text that the identity of the vehicle engine is legal; transmitting an instruction of switching on the colorful light information display 41-1 to the acoustooptic controller 5-1 only when the operation records contain the correct information of the other three member anti-fake means 3-1, 3-2 and 3-4 at the same time; writing the monitoring operation records into the memory 12 (623);~~

~~24. if there does not exist correct identification information of the member anti-fake means 3-3, transmitting an instruction of switching off the colorful light information display 41-1 to the acoustooptic controller 5-1; transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the identity of the vehicle engine is illegal, and writing the monitoring operation records into the memory 12 (624);~~

~~25. if there does not exist correct information of the read/write unit 8, transmitting an instruction of switching off the colorful light information display 41-1 to the acoustooptic controller 5-1; transmitting an instruction of switching on the colorful light~~

information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction

of switching on the acoustic information display 42 to the acoustooptic controller 5-7;

controlling the screen display 43 to describe in graphics and text that the identity of the

vehicle engine is illegal, and writing the monitoring operation records into the memory

5   12 (626);

26.   checking to determiner whether there exists correct information of the read/write unit 9

(627);

27.   if there exists correct information of the read/write unit 9, checking whether there exists

correct identification information of the member anti-fake means 3-4 (628);

10   28.   if there exists correct identification information of the member anti-fake means 3-4,

controlling the screen display 43 to describe in graphics and text that the identity of the

rear-license plate of the vehicle is legal; transmitting an instruction of switching on the

colorful light information display 41-1 to the optical controller 5-1 only when the

operation records contain the correct information of the other three-member anti-fake

15   means 3-1, 3-2 and 3-3 at the same time; writing the monitoring operation records into

the memory 12 (629);

29.   if there does not exist correct identification information of the member anti-fake means

3-4, transmitting an instruction of switching off the colorful light information display

41-1 to the acoustooptic controller 5-1; transmitting an instruction of switching on the

20   colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting

an instruction of switching on the acoustic information display 42 to the acoustooptic

controller 5-7; controlling the screen display 43 to describe in graphics and text that the

identity of the rear-license plate of the vehicle is illegal, and writing the monitoring

operation records into the memory 12 (630);

25   30.   if there does not exist correct information of the read/write unit 9, transmitting an

instruction of switching off the colorful light information display 41-1 to the acoustooptic controller 5-1; transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7;

5   controlling the screen display 43 to describe in graphics and text that the identity of the rear license plate of the vehicle is illegal, and writing the monitoring operation records into the memory 12 (632);

31. checking to determine whether there exists correct identification information of the member anti-fake means 3-1 (633);

10   32. if there exists correct identification information of the member anti-fake means 3-1, controlling the screen display 43 to describe in graphics and text that the identity of the front license plate of the vehicle is legal; transmitting an instruction of switching on the colorful light information display 41-1 to the optical controller 5-1 only when the operation records contain the correct information of the other three member anti-fake

15   means 3-4, 3-2 and 3-3 at the same time; writing the monitoring operation records into the memory 12 and member anti-fake means 3-1 (635);

33. if there does not exist correct identification information of the member anti-fake means 3-1, transmitting an instruction of switching off the colorful light information display 41-1 to the acoustooptic controller 5-1, and transmitting an instruction of switching on

20   the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the identity of the front license plate of the vehicle is illegal; and writing the monitoring operation records into the memory 12 (637);

25   34. checking to determine whether there exists correct identification information of the

member anti-fake means 3-2 (638);

35.   if there exists correct identification information of the member anti-fake means 3-2, controlling the screen display 43 to describe in graphics and text that the identity of the car frame is legal; transmitting an instruction of switching on the colorful light information display 41-1 to the optical controller 5-1 only when the operation records contain the correct information of the other three member anti-fake means 3-4, 3-1 and 3-3 at the same time; writing the monitoring operation records into the memory 12 and member anti-fake means 3-2 (640);

36.   if there does not exist correct identification information of the member anti-fake means 3-2, transmitting an instruction of switching off the colorful light information display 41-1 to the acoustooptic controller 5-1, and transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the identity of the car frame is illegal, and writing the monitoring operation records into the memory 12 (642);

37.   checking whether there exists correct identification information of the acoustooptic controller 5-1 (643);

38.   if there exists correct identification information of the acoustooptic controller 5-1, writing the monitoring operation records into the memory 12 (645);

39.   if there does not exist correct identification information of the acoustooptic controller 5-1, transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the colorful light information display 41-

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1 is illegal; and writing the monitoring operation records into the memory 12 (647);

40. checking to determine whether there exists correct identification information of the acoustooptic controller 5-2 (648);

41. if there exists correct identification information of the acoustooptic controller 5-2, writing the monitoring operation records into the memory 12 (650);

42. if there does not exist correct identification information of the acoustooptic controller 5-2, transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the colorful light information display 41-2 is illegal; and writing the monitoring operation records into the memory 12 (652);

43. checking to determine whether there exists correct identification information of the acoustooptic controller 5-3 (653);

44. if there exists correct identification information of the acoustooptic controller 5-3, writing the monitoring operation records into the memory 12 (655);

45. if there does not exist correct identification information of the acoustooptic controller 5-3, transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the colorful light information display 41-3 is illegal; and writing the monitoring operation records into the memory 12 (657);

46. checking to determine whether there exists correct identification information of the acoustooptic controller 5-4 (658);

47. if there exists correct identification information of the acoustooptic controller 5-4, writing the monitoring operation records into the memory 12 (660);

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48. ~~if there does not exist correct identification information of the acoustooptic controller 5-4, transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the colorful light information display 41-4 is illegal; and writing the monitoring operation records into the memory 12 (662);~~

49. ~~checking to determine whether there exists correct identification information of the acoustooptic controller 5-5 (663);~~

50. ~~if there exists correct identification information of the acoustooptic controller 5-5, writing the monitoring operation records into the memory 12 (665);~~

51. if there does not exist ~~correct~~ identification information of the acoustooptic controller 5-5, transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the colorful light information display 41-5 is illegal; and writing the monitoring operation records into the memory 12 (667);

52. checking ~~to determine whether there exists correct identification information of~~ the acoustooptic controller 5-6 (668);

53. if there exists ~~correct~~ identification information of the acoustooptic controller 5-6, writing the monitoring operation records into the memory 12 (670);

54. if there does not exist ~~correct~~ identification information of the acoustooptic controller 5-6, transmitting instructions of switching off the colorful light information display 41-1, 41-2, 41-3, 41-4 to the acoustooptic controllers 5-1, 5-2, 5-3, 5-4; transmitting an instruction of switching on the acoustic information display 42 to the acoustooptic controller 5-7; controlling the screen display 43 to describe in graphics and text that the

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colorful light information display 41-6 is illegal; and writing the monitoring operation records into the memory 12 (672);

55. checking ~~to determine whether there exists correct identification information of~~ the acoustooptic controller 5-7 (673);

56. if there exists ~~correct~~ identification information of the acoustooptic controller 5-7, writing the monitoring operation records into the memory 12 (675);

57. if there does not exist ~~correct~~ identification information of the acoustooptic controller 5-7, transmitting an instruction of switching on the colorful light information display 41-6 to the acoustooptic controller 5-6; controlling the screen display 43 to describe in graphics and text that the acoustic information display 42 is illegal; and writing the monitoring operation records into the memory 12 (677);

58. checking the communication interface 13-9 to determine whether there exists a legal ~~control~~instruction signal ~~of~~from the computer of the management center (678);

59. if there exists a legal ~~control~~instruction signal ~~of~~from the computer of the management center, the microcomputer accepting the control of the computer of the management center ~~for reading/writing information or installing and configuring program software,~~ and making operation records (679);

after the communication between the computer of the management center and the microcomputer 1 has finished, microcomputer 1 restarting a work cycle;

if there exists no legal ~~control~~instruction signal of the computer of the management center, microcomputer 1 entering the next cycle.

What is claimed is: